Payment Systems Vision

Mission Statement

The establishment of modern, robust, efficient, secure, and integrated payment and settlement system for the country

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Chapter I

Introduction

Payment and settlement systems constitute the backbone of any financial economy. With the objective of ensuring efficient and faster flow of funds among various constituents of the financial sector, Reserve Bank of India has taken up the work of reforms in the payment and settlement systems for the country. While the driving force behind all the initiatives has been technology, it has been ensured that all the other major covenants of a safe, efficient and secure payment and settlement system are fully met with.

To provide a perspective of the direction and target of the reform process, this vision document has been prepared. The document indicates in a nutshell, the broad framework of the initiatives being taken and the approach adopted for time bound implementation of the various projects.

It is hoped that this document would provide a base for the participants to plan their activities The initiatives of both the Reserve Bank of India and the other participants in payment systems would culminate in the achievement of the objective indicated in the Payment System Vision for India.

Chapter II

Institutional Framework for Payment System Reform

Recognising the importance of payments and settlement systems in the economy of the country, the Reserve Bank had embarked on technology based solutions for the improvement of the payment and settlement system infrastructure, coupled with the introduction of new payment products in the latter half of the twentieth century - such as the Computerised settlement of clearing transactions, use of Magnetic Ink Character Recognition Technology and Image for cheque clearing, operationalisation of BANKNET - a leased line terrestrial network, the computerisation of Government Accounts and accounting of Currency Chest transactions. The new payment products introduced over the last few years included the two-way inter-city cheque collection at the four metros, one-way inter-city cheque collection by clearing houses managed by the Reserve Bank of India and a few clearing houses managed by the State Bank of India, Electronic Clearing Service (Debit and Credit), Delivery versus Payment (DvP) for Government Securities transactions and Electronic Funds Transfer.

At present, the Reserve Bank of India has adopted a holistic approach - in which Information Technology is an integral component - encompassing the following:

(i) design and development of a modern, robust, efficient, secure and integrated payment and settlement system
(ii) risks in payment and settlement systems;
(iii) legal framework;
(iv) impact of payment systems on monetary policy;
(v) concerns relating to oversight of the payment systems, and,
(vi) role and responsibility of different constituents of the payment and settlement systems.

In order to drive the Payment System reform process an institutional framework and structure has been created within the Reserve Bank. The base layer of this structure is the multi-disciplinary Payment Systems Group, constituted in February, 1998 - comprising of professionals representing Information Technology, Banking Operations, Supervision, Legal, Economics, Government and Bank Accounts and Foreign Exchange operations - in the Department of Information Technology, which is headed by the Chief General Manager-in-Charge. The focus of attention of the Payment Systems Group is on the System Design of an integrated payments system, Payment instruments, Electronic banking systems, Clearing and settlement arrangements, Technological infrastructure, Legal issues, Monetary policy implications, Change management, re-engineering of the process and procedures and responsibilities of banks and to track the progress in implementation of the systemically important Payment System projects.

The next tier in the institutional framework is a permanent body - the Payment Systems Advisory Committee, headed by the Executive Director-in-Charge of the Department of Information Technology which oversees the operations of the Payment Systems Group and reviews the developments in the area of Payment Systems. The membership of the Payment Systems Advisory Committee comprises of the Heads of Departments represented in the Payment Systems Group and the Regional Directors of the four metros.

The apex layer in the institutional structure is the National Payments Council, chaired by the Deputy Governor in charge of the Department of Information Technology and represented by the Executive Director-in-Charge of the Department of Information Technology, Chairman of the Indian Banks Association, Joint Secretary, Banking Division, Ministry of Finance, Chairmen and Managing Directors of two Public Sector banks, one Private bank, a Non-banking financial company, Securities Exchange Board of India and the National Stock Exchange. The National Payment Council lays down the broad policy parameters for designing and developing an integrated state-of-the-art, robust payments and settlement system for the country. The National Payments Council is assisted by five permanent Task Forces, each of which is headed by a member of the National Payments Council and comprises of a few experts appointed by the Chairman from different disciplines / institutions. It is assisted by the respective Head of the Department concerned within the Reserve Bank. These are the:

- Task Force on Monetary Policy and related issues;
- Task Force on Payment and Settlement Systems Oversight;
- Task Force on Legal Issues;

- Task Force on Technology Related Issues;
- Task Force on Systems and Procedures related issues.

The Task Forces study various issues under their domain and prescribe policy provisions which are discussed in the meetings of the National Payments Council before being recommended for adoption to the Reserve Bank of India.

In addition to the above, co-ordination with the banks is through the INFINET Closed User Group at the Reserve Bank of India, through meetings with the chiefs of the Computer Policy and Planning Departments of banks and the Core Groups constituted by all banks for technology based project implementation.

Chapter III

Broad Approach

In the design and development of integrated modern payment and settlement systems, the Reserve Bank of India as the Central Bank plays a pivotal role, associating at the same time the banking and financial industry in this exercise. A three pronged approach has been adopted to usher in and establish a modern, robust payment and settlements system consistent with international best practices. The strategy revolves primarily around three major themes: (i) Consolidation of the existing Payment Systems; (ii) Development of Payment Systems and (iii) Integration of the Payments and Settlement Systems

I - CONSOLIDATION

The consolidation of the existing payment systems revolves around strengthening Computerised Cheque clearing, expanding the reach of Electronic Clearing Service – Debit and Credit and Electronic Funds Transfer - by providing for systems with the latest levels of technology.

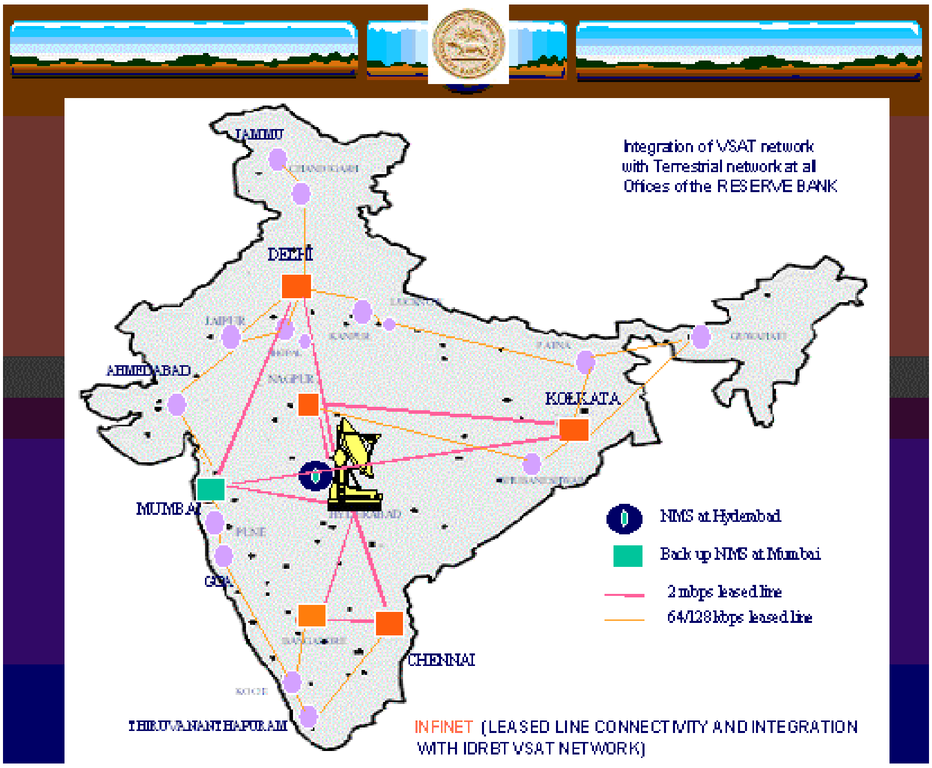
II - DEVELOPMENT

The elements in the developmental strategy are the opening of new clearing houses - to be managed by banks - where 5 banks / branches of the banks exist; interconnection of clearing houses through the INFINET; optimising the deployment of resources by banks through the following facilities:

(i) Real Time Gross Settlement System;
(ii) Centralised Funds Management System (CFMS);
(iii) Negotiated Dealing System (NDS) and Securities Services System (for the settlement of Government Securities in a Delivery versus Payment mode); and
(iv) the Structured Financial Messaging Solution (SFMS)

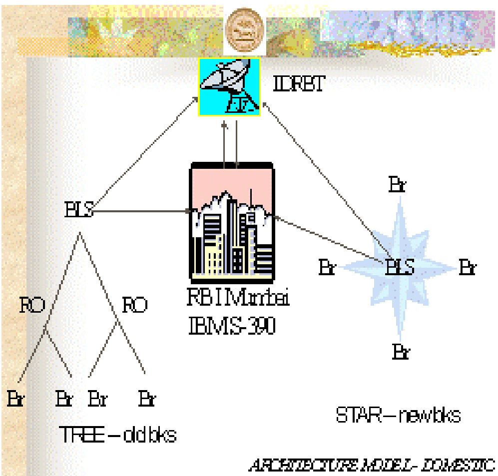
III - INTEGRATION

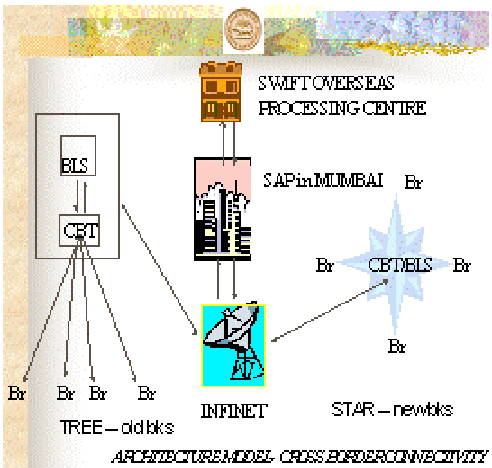
Integration of the various payment products with the systems of individual banks using the facilities offered by computerisation and networking is the thrust area under integration. Integration requires a high degree of standardisation within a bank and seamless interfaces across banks. This would have to be done by standardisation of systems whenever the new systems are acquired and old systems are replaced. Development of corporate intranets by banks, and interconnecting the local branches and connecting the computerised branches with the main branches in a city, with the controlling offices, central treasury departments and head offices, making extensive use of INFINET for intra-bank inter city connectivity is another focus area. The pictures depicted below give a graphic representation of the INFINET and the connectivity of banks.



INFINET - NETWORK DIAGRAM

CONNECTIVITY OF BANKS





The implementation of the payment and settlement systems related projects facilitates in ensuring better customer service, improved house-keeping, building efficient Management Information Systems and overall systemic efficiency. However, the participants in the payment and settlement systems would have to address various initiatives / projects in terms of the following requirements:

- ♣ Institutional arrangements
- ♣ Type of instruments or messages
- ♣ Process and Procedure re-engineering
- ♣ Technology
- ♣ Project Implementation Schedule
- ♣ Change Management
- ♣ Investment costs and recurring expenditure
- ♣ Legal, regulatory framework and oversight issues
- ♣ Risk Management and control measures
- ♣ Benefits projection
- ♣ Macro-economic impact

Chapter IV

Payment Systems – Agenda for Implementation

The Payment Systems Agenda for implementation during the next over two years ending March 2003 can be summed as under:

a. Approach to computerisation and networking including the following components:

  - ➢ Standardisation in the form of standard interfaces with projects of national importance
  - ➢ Development of a secured and robust communication backbone consisting of intranets of the participants, the INFINET and gateways for communication
  - ➢ Interface between networks of participants and the INFINET

(b) Design, development and implementation of critical payment system projects
(c) Upgradation of the process environment and Human Resource Development.

Initiatives under each of these areas are detailed in the following paragraphs.

a. Approach to computerisation and networking:

1. Development of the secure dedicated communication backbone –INFINET - for the banking and financial sector. This would include providing the network for participation by all categories of banks and financial institutions which would benefit out of the usage of this Closed User Group network - such as for the organisations dealing in Government Securities or those which maintain accounts or perform business with the Reserve Bank of India. Keeping in tune with the advances in technology, the network would be expanded to be a combination of satellite and terrestrial modes of communication and action initiated for inter-connectivity of this network to the network of banks (with adequate security controls in place) to facilitate ‘Straight Through Processing’.

2. Utilisation of the network by the banking industry through the development of intra-nets; intra-city connectivity to VSATs and development of bank level gateways. The objective of the INFINET would be to provide inter-city and inter-bank connectivity while banks' own corporate networks could provide inter-branch and intra-city connectivity.
3. Implementation of the Generic Architecture Model for inter-connectivity of branches within banks - following the 'tree' (for older banks with a tiered management control structure) or the 'star' topology (for the newer banks with a flat management control / reporting structure).
4. Integration of the message transfer facilities within the country with that of Society for Worldwide Interbank Financial Telecommunication (S.W.I.F.T.) for 'Straight Through Processing' by inter-connectivity between S.W.I.F.T. and INFINET.
5. Internet banking - as a delivery channel for banking services. Using the benefits of the cost-effective medium of Internet, many services or products of banks could be provided in a secure environment where the authenticity of the constituent and the integrity of the message are ensured.
6. Standardisation of technology for all these projects - from hardware, operating systems, system software, application software and messaging middleware. While these would be applicable for all common inter-bank applications, the software applications at banks could provide for these requirements on the basis of the standards.
7. Providing for a Common Minimum Requirement Level (CMRL) in terms of hardware and networking requirements at the participants of the payment and settlement systems.
8. Connecting INFINET and Internet in a secured manner so that some of the services could be extended to the public through Internet as the delivery channel. This could also be for settlement of e-commerce transactions - for the funds leg to be settled using the INFINET with one bank functioning as the settlement bank. Constituents of banks could communicate to the banks through the Internet or through the medium of other private networks; the interface with the INFINET would be based on achievement of minimum safety and security requirements in all such cases.

b. Design, development and implementation of critical payment system projects

1. Usage of the above infrastructure for inter-bank applications on the Network – types of products (file transfers, e-mail, Deferred Net Settlements, Real Time Gross Settlement Systems, Centralised Funds Management System, Securities Settlement System and Structured Financial Messaging Solution and applications of individual member banks such as Inter-branch Reconciliation, Automated Teller Machine networks, credit information etc); interface with e-commerce and internet at a later date; and by the Reserve Bank of India.
2. Increasing the scope and coverage of Electronic Clearing Services - Credit and Debit Clearing to cover repetitive large volume, low value credits such as for payment of dividends, interest, salaries, incentives, trade payments, and other hitherto cheque based payments and utility payments such as for water, power, gas, telecommunication services, credit card payments etc. and the provision of centralised data submission facility with decentralised processing / data distribution.
3. Increasing the scope and coverage of the Electronic Funds Transfer (EFT) facility - both in terms of speed of conclusion of the transfer to ultimately achieve a 'same-day' movement across banks at different locations and for all categories of customers including corporates by providing for large value transactions. Thus a blend of frequent EFT transmissions and funds settlements could be effected to take care of the varying

needs of different segments and the pricing structure for these could also vary accordingly.

4. Integration of the EFT scheme of the Reserve Bank of India with the schemes available at different banks with the ultimate objective being that of establishment of a national EFT scheme covering all banks
5. Electronic Data Interchange for providing for processing of electronic documents for the trade and for exports and imports and for facilitating ‘Just-in-time’ processing. This could be by the adoption of internationally accepted models with standardised message formats and interchange guidelines.
6. Use of products with newer technologies - such as Smart cards and other cards with integrated memory capabilities - all based on uniform standards providing for inter-operability and capability to be used for multi-purpose applications with a central settlement facility.
7. Inter-connectivity of the Automated Teller Machines or of the Automated Teller Machine networks already established and integration with the systems to be set up in the near future. This would provide for common usage of any time by any Automated Teller Machine card holder with a centralised settlement facility.
8. Variants of electronic money (e-money or e-cash) based on the levels of usage of such products - all in a safe and secure electronic environment.
9. Centralised Public Debt management and increased dealings in Government securities. This would be achieved by the Centralised Public Debt Office system comprising of the Negotiated Dealing System and the Securities Settlement System and providing access to participants such as the Primary and satellite dealers for the securities leg and integration of this system with the Real Time Gross Settlement System. Linkage to the money market dealing systems for exploiting the economies of scale would also be provided for. To take care of netting of the securities transactions, the Clearing Corporation of India Ltd would function as the Clearing House for securities netting and arriving at the net funds settlement legs.
10. Implementation of the Real Time Gross Settlement System to provide for funds settlement across bank accounts in central bank money - on a real time basis. Intra-day liquidity facilities would be provided by the Reserve Bank on collateralised repo basis or as may be decided from time to time - all keeping in view overall economic impact of these provisions.
11. Accounting of Deferred Net Settlements as Real Time Gross Settlement transactions to provide for real time posting of the settlements
12. Linkage of the Deposit Accounts Departments of the Reserve Bank of India - through the Centralised Funds Management System so as to provide for the current account holders an online facility to view the balances in the accounts maintained with the Reserve Bank - using the messaging facility of the INFINET
13. Provision for funds movement across locations of the Reserve Bank in an online manner using the Centralised Funds Management System with adequate security control in place
14. Linkage of the clearing houses managed by the Reserve Bank of India in the first phase and the other clearing houses in the second phase - to provide for a national clearing settlement for Deferred Net Settlements.
15. Opening of new clearing houses at unrepresented cities in the country. The base line criterion would be centres with five banks / branches
16. Expanding the coverage of Intercity cheque clearing to reduce the time-lags in the cheque collection process. This would be by implementation of two-way inter-city clearing between all the Mechanised Ink Character Recognition based centres (whether the Cheque processing Centre is managed by the Reserve Bank of India or not) in the first

phase to be followed by the introduction of one-way clearing between the non-Magnetic Ink Character Recognition centres and the nearest Magnetic Ink Character Recognition centres.

17. Implementation of a foreign exchange clearing for all foreign currency denominated transactions so as to ensure only the transmission of net funds transfer messages to foreign correspondent banks - by the establishment of the Clearing Corporation of India Ltd.
18. Expansion of Magnetic Ink Character Recognition based clearing to more centres - using systems which would be optimal for these centres. The Cheque Processing Centres at such centres would be manned by Commercial banks.
19. Introduction of Image based cheque processing which could be a fore-runner for cheque truncation.
20. Introduction of cheque truncation at the appropriate stage - where the cheque does not travel from the presenting bank to the drawee bank - but only the image of the cheque travels - in an electronic environment.
21. Introduction of high value clearing at more centres to facilitate quicker realisation of high value paper based instruments
22. Providing for centralised credit information systems - such as credit bureau to gauge the financial heath of borrowers of banks
23. Setting up of a central repository of data - the data warehouse which would have data relating to payment and settlement systems also, which could be extracted using appropriate data mining techniques. While the Reserve Bank would be establishing a data warehouse for economic and other similar data, such initiatives could be also be embarked upon by banks and the Indian Banks' Association.
24. Setting up corporate bank Websites to disseminate information to customers and enabling them to perform transactions will emerge in due course within the industry.

c. Upgradation of the process environment

1. Issues related to Business Process re-engineering within the banking industry and the Reserve Bank of India including Facility Management, Security related issues and the development and training of Human Resources to successfully man the facilities created.
2. Compliance with the Core Principles for Systemically Important Payment Systems as elucidated by the Bank for International Settlements, Basle.
3. Amendments to relevant laws - such as the Negotiable Instruments Act to take care of non-paper based debits and other such requirements.
4. Formulation of suitable Payment System Legislation and a body (within the Reserve Bank of India) to oversee the functioning of the payment and settlement system of the country.
5. While it is possible to achieve the initiatives listed within the framework of the current legal precincts, suitable other laws such as the Payment System Netting Act, the Payment Systems Regulation Act, the Electronic Funds Transfer Act, the Electronic Funds Transfer Regulations and other enactments to provide for regulation and oversight over payment and settlement systems would be made.
6. Providing for Critical Minimum Security Requirements (CMSR) at the end of the central processor and at the participants.
7. Providing for digital signatures and certification in respect of network based messages, with the Institute for Development and Research in Banking Technology being the certification authority for the banking / financial sector – Public Key Infrastructure to provide security features of authentication, integrity, confidentiality and non-repudiation..

8. Identification of areas of risk and putting in place adequate risk reduction strategies based on risk profile assessment of the participants of the payment and settlement systems.

d. Conclusion

The task of design, development and operationalisation of a modern, integrated, robust payment and settlement system for the country, is a gigantic one. The strategy for achieving this is by breaking the various objectives into many components, with clear targets to be achieved at every stage whereby it becomes more manageable to accomplish each objective in its entirety. The role and functions of each participant in the payment and settlement systems of the country are also vital and it is only by the concerted efforts of all concerned that the vision would materialise into reality and the mission accomplished.